

WHAT IS CLAIMED IS:

1                   1.       A hair-removal method comprising:  
2                   determining the diameter typical of the hair to be removed from a patient;  
3                   selecting a laser-pulse duration for a hair removal device according to this  
4 diameter of the hair so that smaller diameter hair results in a shorter laser-pulse duration  
5 than larger diameter hair; and  
6                   applying laser energy through a window of the hair removal device of the  
7 selected laser-pulse duration to a patient's skin to cause thermal injury to hair tissue.

1                   2.       The method according to claim 1 further comprising the step of  
2 selecting a chosen one of a laser-pulse amplitude and a laser-pulse fluence prior to the  
3 applying step.

1                   3.       The method according to claim 1 wherein the laser energy applying  
2 step is carried out by:  
3                   positioning a cooling element of the hair removal device against a first  
4 target area on the patient's skin;  
5                   moving, after a chosen cooling period of time, the cooling element from  
6 the first target area to a second target area with the window overlying and spaced-apart  
7 from the first target area;  
8                   applying the laser energy to the first target area through the window with  
9 the window overlying and spaced-apart from the first target area.

1                   4.       The method according to claim 3 further comprising moving, after  
2 the laser energy applying step, the window to overlay the second target area while  
3 positioning a second cooling surface against the first target area.

1                   5.       The method according to claim 3 wherein the moving step is  
2 carried out with the chosen cooling period of time being about 0.25 to two seconds.

1                   6.       The method according to claim 3 further comprising the step of  
2 selecting a hair removal device using laser energy in the 800 to 1200nm average length  
3 range.

1                   7.       The method according to claim 1 further comprising the step of  
2 selecting a hair removal device using laser energy having a wavelength of about 1.06  
3 microns.

1                   8.       The method according to claim 1 wherein the selecting step is  
2 carried out so that hair diameters from about 25 to 150 micrometers result in laser-pulse  
3 durations of about 5 to 50 milliseconds.

1                   9.       A method for preparing to apply hair tissue-damaging radiation to a  
2 target site on a patient's skin comprising:

3                   accessing a hair removal device having a skin cooling surface and a  
4 radiation source with a window through which hair tissue-damaging radiation passes, the  
5 skin cooling surface and the window aligned along a direction of motion;

6                   selecting a chosen one of :

7                   (i) a first chosen time interval (C) for cooling the target site; and

8                   (ii) a second chosen time interval (Z) between applications of hair  
9 tissue-damaging radiation; and

10                  determining the other of the first and second time intervals based on the  
11 following:

12                    $Y = (X \cdot C) / Z$ , where

13                   X and Y are the respective lengths of the cooling surface and the  
14 window measured in the direction of motion.

1                   10.       The method according to claim 9 further comprising applying laser  
2 energy through a beam size-defining lens system to control the lateral size of the radiation  
3 beam passing through the window.